ICS 27.010
CCS F01

NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB 21370-2017

Replacing GB 21370-2008

The norm of energy consumption per unit carbon product materials

炭素单位产品能源消耗限额

Issued on: November 1, 2017 **Implemented on: November 1, 2018**

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Standardization Administration of China**

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Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009. This standard replaces GB 21370-2008 "Carbon unit energy consumption limit." This standard compared with GB 21370-2008, the main To change as follows:

--- Increased the level of energy consumption limit;

--- Removed the advanced value of energy consumption and energy-saving management and measures;

--- Retain the value of the quota under the conversion factor of the equivalent value of electricity and amend the index value; Cancel the limit under the conversion factor of the equivalent value of electricity Index

--- graphitization process power consumption for graphite semi-finished products clear power consumption;

--- Perfecting and simplifying the quota calculation formula. This standard by the National Development and Reform Commission Resources Conservation and Environmental Protection Division, Ministry of Industry and Information Technology Energy Saving and Comprehensive Utilization Division. This standard is centralized by China National Standardization Administration. This standard drafting unit. China Carbon Industry Association, Iron and Steel Research Institute, Fangda Carbon New Materials Technology Co., Ltd., Jilin carbon Co., Ltd., China Pingkai Shenma Group Kaifeng Carbon Co., Ltd., Hefei Carbon Co., Ltd., Hebei Shuntian Electrode Co., Ltd., Hebei Union Crown Co., Ltd. The main drafters of this standard. Sun Qing, Huang Jianguo, Yu Xiu Ping, Gu Yanhua, Han Jianhua, Li Hongwei, Zhang Baoping, Sun Jian, not Hongmei, Duan Weijiang. This standard replaces the standards previously issued as.

--- GB 21370-2008. Carbon energy consumption per unit of product quotas

1 Scope

GB 21370-2017 is the Chinese national standard on the norm of energy consumption per unit carbon product materials, in the field of energy and heat transfer engineering. It carries no /T suffix, which in the Chinese system means compliance is mandatory: a product or a practice within its scope has to meet it to be lawfully made, sold or carried out in China. It was issued on 1 November 2017 by the General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China; Standardization Administration of China, and has been in force since 1 November 2018. Classification: ICS 27.010, CCS F01. This page is published from the official record of the standard held by the Chinese standards administration: the identification, the dates, the classification and the issuing body are taken from there. The clause text, the tables and the numeric limits are in the document itself, which is delivered complete in English translation.

--- j-type carbon products in the process k-step process (firing process, graphitization process) energy consumption per unit of product, in units of Kg of standard coal per tonne (kgce/t); eik

--- carbon products processing k-channel process (a process before the processing) i-th kind of energy consumption, unit Is ton (t) or kilowatt-hours (kW ·

h) or cubic meters (m3); μik

--- process of carbon products in the k-th process (a process before the process) i-th energy off the standard coal coefficient, single Tonne of standard coal per kWh [tce/(kW · h)] or tonne of standard coal per tonne (tce/t) or ton of standard coal per cubic meter (tce/m3); Pjk

--- carbon products processing k-channel process (a process before the processing operation) j-type carbon products output, in units of Ton (t); lambdajk

--- carbon products process k-channel process (a process before the process) j-type carbon products in the k-Road workers Sequence of energy consumption distribution coefficient (according to Appendix B of the data value).

6.3 Graphite electrode, carbon electrode and carbon block unit product comprehensive energy consumption calculation Graphite electrodes, carbon electrodes and carbon blocks and other carbon products, the comprehensive energy consumption per unit according to equation (2) calculation. ETS, j = ets, j PTS, j = EGX, jm Sigma m-1 k = 1 EGX, jk etametak ietak 1 (2) In the formula. ETS, j

--- j kinds of carbon products [(2), j = 1-3, respectively, graphite electrodes, carbon electrodes or carbon blocks, three kinds of carbon products] Single Comprehensive energy consumption of a product, in kilograms of standard coal per tonne (kgce/t); ets, j

--- total amount of all energy consumed in the jth carbon product production process, in kilograms of standard coal (kgce); PTS, j

--- j species of qualified production of carbon products, in tons (t); EGX, jm

--- jth carbon products processing m-th process (processing) energy consumption per unit of product, in kilograms Coal per ton (kgce/t); etam

--- carbon products processing m-step process (processing) yield (processing yield); etak i

--- carbon products processing ki Road process step (before the processing step of a process) yield. Appendix A. (Informative) All kinds of energy discount coal reference coefficient A variety of energy discount coal reference coefficient in Table A.1. Table A.1 various types of energy standard coal reference coefficient The average energy name of the low heat value fold standard coal coefficient Raw coal 20908kJ/kg 0.7143kgce/kg Anthracite (wet) 25090 (wet) kJ/kg 0.8571kgce/kg Thermal coal (wet) 20908 (wet) kJ/kg 0.7143kgce/kg Coke (ash content 13.5%) 28435 kJ/kg 0.9714 kgce/kg Gasoline 43070kJ/kg 1.4714kgce/kg Kerosene 43070kJ/kg 1.4714kgce/kg Diesel 42652kJ/kg 1.4571kgce/kg Natural gas 38931kJ/m3 1.3300kgce/m

1.0 Carbon block 0.9 0.9 1.0 1.0 1.0 -

0.93 Impregnated electrode 1.0 1.0 1.0 1.0 1.0 - - Graphitized electrode 1.0 1.0 1.0 1.0 1.0 1.0

2 Normative references

The following documents for the application of this document is essential. For dated references, only the dated version applies to this article Pieces. For undated references, the latest edition (including all amendments) applies to this document.

GB/T 12723 per unit of product energy consumption limits prepared by the General

3 Terms and definitions

GB/T 12723 and defined by the following terms and definitions apply to this document.

3.1 Graphite electrode unit product comprehensive energy consumption specificenergyconsumptionperunitgraphitepole During the reporting period, the unit produced qualified graphite electrodes, the actual consumption of various energy off the total amount of standard coal.

3.2 Carbon electrode and carbon block unit product comprehensive energy consumption specificenergyconsumptionperunitcharcoalpoleandcarbonblock During the reporting period, the unit produced qualified carbon electrodes, carbon blocks, the actual consumption of various types of energy off the total amount of standard coal.

3.3 Roasting process unit product energy consumption energyconsumptionofperunitproductofbakingprocedure During the reporting period, the roasting process qualified units of the production units, the actual consumption of various energy off the total amount of standard coal.

3.4 Graphitization process unit product energy consumption energyconsumptionperunitproductofgraphite-makingprocedure In the report period, the graphitization process qualified units of graphitized products, the actual consumption of various types of energy off the total amount of standard coal.

4 Energy consumption level

Carbon production of graphite electrodes, carbon electrodes and carbon blocks and carbon production roasting and graphitization process unit product consumption limits Grade See Table 1 and Table 2, of which one lowest energy consumption. Table 1 graphite electrode, carbon electrode and carbon block energy consumption per unit of product rating product name Energy consumption rating Unit product Comprehensive energy consumption kgce/t Unit product Power consumption kW · h/t Unit product Comprehensive energy consumption kgce/t Unit product Power consumption kW · h/t Unit product Comprehensive energy consumption kgce/t Unit product Power consumption kW · h/t graphite electrode Ordinary power graphite electrode <=2060 <=5630 <=2170 <=5800 <=2410 <=6440 High power graphite electrode <=2620 <=6160 <=2740 <=6640 <=3050 <=6820 Ultra-high-power graphite electrode <= 3230 <= 6800 <= 3425 <= 6865 <= 3780 <= 7260 Carbon electricity Product diameter <=1000mm <=720 - <=765 - <=895 - Product diameter > 1000mm <=1325 - <=1375 - <=1575 - Carbon block (Semi) graphite carbon block <=1130 - <=1200 - <=1330 - Micro-hole carbon block <=1280 - <=1350 - <=1500 - Table 2 carbon production roasting and graphitization process per unit product energy consumption rating product name Energy consumption rating Unit product Energy consumption kgce/t Unit product Power consumption kW · h/t Unit product Energy consumption kgce/t Unit product Power consumption kW · h/t Unit product Energy consumption kgce/t Unit product Power consumption kW · h/t Roasting process. Product diameter <= 500mm 500mm < product diameter <= 1000mm Product diameter > 1000mm <=385 <=450 <=900 <=455 <=525 <=1120 <=530 <=610 <=1260 Graphite process. Ordinary power graphite electrode High-power graphite electrode Ultra-high power graphite electrodes <=1035 <=1140 <=1200 <=4080 <=4480 <= 4668 <=1105 <=1215 <=1280 <=4330 <=4765 <=4930 <=1170 <=1285 <=1345 <=4770 <=4970 <=5480

5 Technical requirements

5.1 carbon products and their main processes of production unit energy consumption limit value

5.1.1 Graphite electrode, carbon electrode and carbon block energy consumption per unit